

Zero Retries issue 0218 2025-09-05

Zero Retries is an independent newsletter promoting technological innovation in and adjacent to Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Radios are computers - with antennas! Now in its fifth year of publication, with ~~3100+~~ 3200+ subscribers.

About Zero Retries

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Request To Send

Commentary by Editor Steve Stroh N8GNJ

Paid Subscribers Update

A long overdue public **Thanks** to the Paid Subscribers of Zero Retries.

The revenue from the many Paid Subscribers to Zero Retries has covered all the costs incurred for publishing Zero Retries for a while now. In 2025, the revenue from the Paid Subscribers, along with a financial donation from ARDC, has enabled Tina and I to handle most of the costs of the Zero Retries Digital Conference... and as limited income retired (well... we don't have *day jobs*...) folks we are very grateful for such financial help on ZRDC 2025.

Thank you to all paid subscribers of Zero Retries!

As for this week...

My thanks to **Randy Smith WU2S** for *renewing* as a **Founding Member Subscriber 0001** to Zero Retries this past week (3 years)!

Founding members are listed in every issue of Zero Retries!

My thanks to **Sid Siegel** for *renewing* as an **Annual Paid Subscriber** to Zero Retries this past week (3 years)!

My thanks to **Craig Cherry N7RWB** for *renewing* as an **Annual Paid Subscriber** to Zero Retries this past week (2 years)!

My thanks to **Prefers to Remain Anonymous 49** for *renewing* as an **Annual Paid Subscriber** to Zero Retries this past week (2 years)!

My thanks to **Justin Overfelt AB3E** for *upgrading* from a free subscriber to Zero Retries to an **Annual Paid Subscriber** this past week! AB3E included this nice note:

Thanks again for curating this newsletter. In a world where you can find anything, curation is one of the most sought-after skills. Anyone can aggregate, but curation requires good taste. Keep up the good work Steve!

My thanks to **David Billstrom N4SZ** for *upgrading* from a free subscriber to Zero Retries to an **Annual Paid Subscriber** this past week!

My thanks to **Prefers to Remain Anonymous 97** for becoming a *new* **Annual Paid Subscriber** to Zero Retries this past week!

My thanks to **Prefers to Remain Anonymous 98** for becoming a *new* **Annual Paid Subscriber** to Zero Retries this past week! PTR 98 included this nice note:

I support your work because experimentation in radio is important and should be encouraged.

Financial support from Zero Retries readers is a significant vote of support for the continued publication of Zero Retries.

3200 Zero Retries Email Subscribers

Well, close enough - as I put the finishing touches on this issue, the email subscriber count is *nearly* at 3200. This past week there was some mention of Zero Retries again resulting in another slow surge of email subscriptions that will push the email subscriber count past 3200 in the next few days. Thus it's "close enough" to note this minor milestone in this issue when I have a bit more time than I will have for Zero Retries 0219 which I'll be writing during GRCon 2025 and scheduled to publish on the eve of ZRDC 2025.

Thank you email subscribers, and followers via RSS, Mastodon, and Bluesky. Your ever-growing active "following" lets me know that Zero Retries has a useful purpose.

Busy Busy Busy

As I work on this issue of Zero Retries to publish it as usual on Friday, I'm on a very brief personal trip to be with extended family for a memorial service, and then back in time to help, and participate with [GNU Radio Conference 2025](#) all week from setup on Sunday 2025-09-07, then Monday 2025-09-08 through Friday 2025-09-12. Then... the big one - the inaugural Zero Retries Digital Conference 2025 on Saturday 2025-09-13.

ZRDC 2025 - 8 Days!

Discussing and creating new technologies in Amateur Radio

The above is now the new tagline for mentions of Zero Retries Digital Conference, 2025, and future ZRDCs. (Tina and I have been so encouraged at how ZRDC 2025 has developed that we're actively discussing ZRDC 2026.)

Zero Retries Digital Conference 2025 is in a mere eight days as this issue of Zero Retries will autopublish. *You cannot imagine how much I'm looking forward to this full immersion in numerous topics that are specifically chosen (and presentation speakers specifically solicited) as Zero Retries Interesting.* All of the presentations address some aspect of technological innovation in Amateur Radio. I'm privileged to get an early look at the ZRDC 2025 Proceedings compilation of papers and presentations and wow... *we're all going to learn a lot.*

And Then, More Work Begins

After ZRDC 2025, I have a long deferred list of work to be done - *lots of Technical Debt*. The most urgent, and my primary focus immediately after ZRDC 2025 will be to save out all of my blogs from Typepad which [shuts down on 2025-09-30](#).

I have no idea if or how I'll re-host all that data from more than 2 decades of blogging. One of the cool features of Typepad was that they allowed unlimited individual blogs for the same hosting fee, and allowed unique domain names on each, and I took advantage of that. My two blogs that related to Amateur Radio were [N8GNJ.org](#) and [SuperPacket.org](#), and a few primary articles of mine that I regularly cite, such as my CQ columns, have been uploaded to the Zero Retries Guides for easy access.

And after I figure out what to do with everything I save prior to Typepad shutting down, it's time to work on the long-deferred task of re-hosting Zero Retries.

I *think* I have a plan for that, at a new, cool domain to publish Zero Retries beginning in 2026. That will make for a nice clean break and allow a saner "re-homing" of the archives of Zero Retries eventually off of Substack.

And after Zero Retries future hosting arrangements are made, it's long past time to move Zero Retries into the technology of 2025 by putting AI to use on the 4+ years of weekly Zero Retries newsletters using Google's [NotebookLM](#). Unlike the typical AI chatbots, NotebookLM is a bounded system designed for exactly this kind of use - run queries by accessing only *specific* content.

Brittle systems

This was a [poignant blog post](#) by one of my virtual mentors, Seth Godin:

Large organizations are purpose-built to do what they do, under prevailing conditions.

People are hired, assets are acquired, measurements are put in place—all to optimize what's happening right here and right now.

In 1929, 200 million telegrams were sent. The wiring, technology, staffing, real estate holdings and marketing of Western Union were all optimized around delivering these telegrams profitably and with quality.

By most external measures, it was working, brilliantly. There weren't too many things you could do to make the telegram system dramatically better.

When the change agent appears, the optimized organization stumbles. It takes heroic work to shift it for a new reality. *Short-run efficiency rarely aligns with long-term resilience.*

More often than not, it's the insurgent that takes the lead. All they need to do is optimize for the new reality, they can skip the part about restructuring what they already have.

This is sort of obvious, but worth saying out loud. And while these shifts used to take decades, now they happen far more quickly. It hardly pays to be the dominant maker of fax machines in 2025.

If you're an insurgent with a small team and fixed asset base, be on the hunt for a change agent that is going to swamp existing systems. When the change comes, you're ready for new rules and the competition is hoping for stability.

And if you're part of a dominant incumbent organization, perhaps it's time to start looking for a new gig instead of hoping to wait out the shift. Because the new normal is rarely a return to the old normal.

I sometimes get a little too deep in the technological weeds and extrapolation of trends and connections that only I tend to see, thus it's great to offer a more general perspective like Godin's.

In the context of Zero Retries and technological innovation in Amateur Radio, and the emergence of NewTechHams and their *vastly different expectations and intentions for their involvement* in Amateur Radio, Godin offers perspective, particularly:

It hardly pays to be the dominant maker of fax machines in 2025.

Think of how different Amateur Radio equipment could... will be in 2030 when we'll probably have big enough A/D converters to handle VHF / UHF easily and inexpensively, really cheap FPGAs and AI chipsets, even more cheap and powerful embedded computers, and a lot more Amateur Radio Operators comfortable and conversant and capable with Software Defined Radio?

I fully expect that we'll see the emergence of the Universal Amateur Radio Appliance (UARA)[1](#) in five years. Imagine an "Amateur Radio box" that you put in a corner, or the attic, or in a shed out in the yard at the base of an antenna, and do all your communications to it and Amateur Radio via your household LAN. For a glimpse of a predecessor of the UARA, see the [FlexRadio Aurora AU-520](#). But what's different about a UARA is that the operation of the UARA is defined entirely by software - radio emission, mode, protocol, user interface... *everything*. But unlike a FlexRadio Aurora, the software running a UARA will be entirely under the control of the user. All of the radio parameters, opening parameters, user interface, etc. is decided by the user. And yes, I'm sympathetic to the argument that with a unit such as a FlexRadio, you're paying (and living with the limitations of) a usable unit that is

tested, working, and supported. I get that argument - for my writing and general computing, I prefer Macs.

Basically a UARA is just a “radio frequency to network adapter”.

I will imagine that by the time we get to 2030, we’ll have entirely new modes that we can’t currently imagine. Just a blue sky (imagined) mode - a system that would allow multiple stations around the world to simulcast², pager style, on an HF frequency to offer reliable worldwide Amateur Radio bulletins. Another is that video transmission will become commonplace on Amateur Radio VHF / UHF bands, to (again) offer video tutorials to potential Amateur Radio Operators about the fun of Amateur Radio *delivered via Amateur Radio* instead of YouTube.

The market for such a UARA (or just Universal Radio Appliance) is much, much wider than Amateur Radio, and I think the speed-to-market possible with the tools of the 2020s means that like Matt Ettus N2MJI who founded Ettus Research and created the Universal Software Radio Peripheral (USRP) and Gerald Youngblood K5SDR who founded FlexRadio Systems), a company that offers such a product can very quickly find a larger market than Amateur Radio. *Someone is going to make the leap* of making Software Defined Transceivers that bridge between the very flexible, but low power units such as [RedWire Technologies Oxygen](#), and high power (and thus real world usable) but fixed function radios such as the FlexRadio Aurora, that also operate at VHF / UHF.

The mistake I see being made repeatedly in legacy Amateur Radio media is assuming steady state - extrapolating from the *current* Amateur Radio population, technologies, and operations instead of imagining (and planning for) the changing nature of Amateur Radio Operators such as NewTechHams and ever evolving radio technology capabilities such as “easily tinkerable” SDR. The LinHT is going to be an absolute game change in radio technology. It’s generating significant interest outside of Amateur Radio - see this [LinkedIn post](#) by Wojciech Kaczmarek SP5WWP - more than 205 comments and 78 reposts - about a *portable radio*, mostly from non Amateur Radio Operators.

One of the features I love about US Amateur Radio is that we can create entirely new modes and technologies, *and use them on Amateur Radio bands*, as long as such new modes and technologies are “publicly disclosed”, which is generally accepted these days as posting it on a web page.

I’m now observing that NewTechHams are *simply taking no notice* of the “oldfartitis” of existing Amateur Radio individuals and paradigms *and just getting on with their fun, learning, and experimentation* in parallel with existing Amateur Radio individuals and activities. Amateur Radio is a big wide open activity!

[The Communicator - September / October 2025 Edition](#)



Image courtesy of Surrey Amateur Radio Communications

I’m proud to be contributing to The Communicator with my third column - **The Linux Handie Talkie... and why In person conferences are (still) important** on pages 70-74.

I’ve now begun seeing references that The Communicator is becoming the most widely read Amateur Radio publication worldwide. I’ve felt this way for a while, and I’ve been promoting The Communicator as *the* publication to check out if someone is curious about Amateur Radio. In fact, I’m going to print out this entire issue (102 pages) to have for people to browse through at GRCon 2025 and ZRDC 2025. I think there are a number of reasons for The Communicator achieving this status:

- The articles, writing, content mix, editing, and production values are easily the equal of any “professional” Amateur Radio publication. The Communicator is a joy to read in depth.
- It embraces a variety of skill levels / experience in Amateur Radio, from beginners, to advanced (but not too advanced as to lapse, too often into engineer-speak). For me, there is more than enough Zero Retries Interesting content to have made me a fan long before I began writing for The Communicator.
- It’s edited and published by nice folks in Canada.
- It’s written in English (thus easily (?) auto-translated³ into almost any other language.
- It doesn’t devote pages to contest results, has a minimum of ads (many of which wouldn’t be relevant to a worldwide audience), and has just enough nostalgia to be truly interesting, but not lapse into a “remember when...” publication.
- And, of course, it’s free and distributed entirely online, so there are no expenses incurred in reading it. It’s distributed as a PDF so it can be downloaded and read at your leisure (no irritating paywall application to deal with).

If I were a major Amateur Radio vendor with sales worldwide ... (just saying - Alinco, Elecraft, FlexRadio, Icom, Kenwood, Yaesu, Xiegu...) I would try

to get my company's name mentioned in The Communicator as a sponsor because The Communicator is going to be one of the first "touchpoints" of future Amateur Radio Operators, and it's always a good thing to make a good first impression (by association) for your brand.

Weekends Are For Amateur Radio!

Have a great weekend, all of you co-conspirators in Zero Retries Interesting Amateur Radio activities!

Steve N8GNJ

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Zero Retries Digital Conference 2025 Update - 9/5/2025

By Tina Stroh KD7WSF

*This is the seventh in a series of weekly updates leading up to Zero Retries Digital Conference 2025. ZRDC 2025 occurs in **ONE** week!*

THE DEADLINE IS TONIGHT!

IN-PERSON REGISTRATION

Tonight, September 5th, is the deadline to register for the all inclusive in-person attendance (includes meals). Although you can register at the door for a higher fee, ***IT WILL NOT INCLUDE MEALS!*** Although I have said this from the beginning, I just don't want to turn people away from the catered meals (morning breakfast and catered lunch). That just makes me feel awkward and awful.

The schedule for ZRDC 2025 is as follows:

Editor's Note - Substack's formatting is pretty limited, so in Zero Retries, I can't display the nice table format that Tina prefers.

0730-0745

Registration opens

Continental breakfast opens

0815

Call to start 15 min to start of conference

0830 - 0845

Welcome

Opening remarks

Sign up for Lightning Talks

Introduce Keynote Speaker

0845 - 0915

Keynote Address: Amateur Radio in the 21st Century

Steve Stroh N8GNJ

0915 - 0930

Keynote Q&A

0930 - 0945

Break

0945 - 1030

Speaker # 2: KK7NQN Transcriber Service Node

Hunter Inman KK7NQN

1030 - 1045

Speaker # 2 Q&A

1045 - 1115

Speaker # 3: Earth Moon Earth - With Software Defined Radio

Dennis Rosenauer AC7FT

1115 - 1130

Speaker # 3 Q&A

1130 - 1200

Speaker # 4: Amateur Radio's Virtual Universal Library - DLARC

Kay Savetz K6KJN

1200 - 1205

Comments

Announce and direct to lunch

1205 - 1245

Buffet Lunch

1210 - 1235

Lightning Round Talks

1240 - 1245

Call to resume

Comments

1245 - 1315

Speaker # 5: Hailing Channel for Packet Radio

Bryan Hoyer K7UDR

1315 - 1330

Speaker # 5 Q&A

1330 - 1345

Break

1345 - 1430

Speaker # 6: ARDC 44 Net VPN

Schuyler Erle N0GIS

1430 - 1440

Speaker # 6 Q&A

1440 - 1515

Speaker # 7: IP 400

Garvin Cole VE6GFC

1515 - 1530

Speaker # 7 Q&A

1530 - 1545

Break

1545 - 1630

Speaker # 8: AREDN Microwave Networking

Tim Wilkinson KN6PLV

1630 - 1645

Speaker # 8 Q&A

1645 - 1730

Speaker # 9: M17 - Open Source Digital Voice

Jeff Scoville AE5ME

1730 - 1745

Speaker # 9 Q&A

1745 - 1800

Closing Comments

Thank speakers, sponsors, vendors, volunteers, attendees

Awards

1800 - 2000

Reception at Brooklyn Brothers Pizzeria across the street from the venue hosted by Tina and Steve Stroh.

DOOR PRIZES



Image courtesy of AllScan.info

Our latest Door Prize sponsor is AllScan.info. See the story below **Zero Retries Interesting AllScan.info Products** for a detailed explanation of AllScan.info's donation.

As mentioned in previous columns, we have several door prizes that have been very generously donated by our sponsors. Each in-person admission ticket will have a door prize ticket placed in their name badge holder for safe keeping. At various times during the day, we will draw corresponding tickets from the pool. Virtual attendees are not eligible. Steve, Tina and Merideth Stroh are the only people excluded from the drawing. We will supply a full list of door prizes and sponsors in the next issue and as a document on the Conference page.

We greatly appreciate the support from our sponsors with our sincere Thanks!

VIRTUAL ATTENDANCE

If you have registered for a virtual attendance ticket, an email will be sent to you at the email address you provided on the registration form. That email will be sent on **THURSDAY, SEPTEMBER 11TH**. The email will contain the address for the Zoom Webinar AND the link to download the conference materials. Should you have any problems, please contact Tina Stroh, ZRDC Manager at tina@zeroretries.net.

As mentioned earlier in this series, two new ZRDC tickets have been added to the registration platform for clubs to purchase. There are two versions of the club ticket; one for virtual attendance on the day of the conference and the other for the early release of the video. It is one ticket price, regardless of how many people are participating.

GRCon 2025

As a reminder, GRCon 2025 (GNU Conference) starts this coming Monday, 9/8/2025. The coordinators have been extremely generous and have offered a **ONE DAY PASS FOR ZERO RETRIES ATTENDEES** at a significant savings. A normal one day pass is \$350.00 and **now discounted to \$125.00**, all inclusive including meals. **However**, you must be registered for the Zero Retries Digital Conference (ZRDC) to receive the discount. This is an extremely generous offer and we hope many will take advantage of it.

Discount code: ZERORETRIESDISCOUNT

<https://tickets.gnuradio.org/grcon25/redeem?voucher=ZERORETRIESDISCOUNT>

We can't wait to see you at ZRDC 2025 and if you're coming to GRCon 2025, please say Hi.

M17 Conference Is This Weekend

By Steve Stroh N8GNJ

The (inaugural) [M17 Conference 2025](#) (M17C) is this weekend in Nowy Dwór Mazowiecki, Poland.

In my mind, the "star of the show" at M17C 2025 will be discussion of the [Linux Handie Talkie - LinHT](#) handheld Software Defined Transceiver. Some of the LinHT developers will attend M17C, and some of the prototype hardware will be shown off. Because of my travel, I probably won't get any news from that seminal event until it's over. I can't wait to see some of the developments reported out of this event.

Here are just a few of the great presentations on the [schedule](#):

- Remote Radio Units – a new generation of repeaters – Wojciech Kaczmarek (SP5WWP)
- LinHT – a GNU Radio configurable handheld transceiver – Wojciech Kaczmarek (SP5WWP)
- DR subsystem of OPS-SAT 1 – test trial of M17 protocol in space – Marcin Jasiukowicz (SP4EVA)
- SatNOGS: Satellite Hunting the Open-Source Way – Alfredos Damkalis (SV1QZZ)
- Introduction to TETRA and its use in amateur radio – Jacek Lipkowski (SQ5BPF), Marcin Brzozowski (SP8MB)

It's my opinion that Remote Radio Units and LinHT are both very significant new developments in Amateur Radio, so I'd certainly be eagerly soaking up all the knowledge I could, direct from the source of those two developments.

SP5WWP stated that the presentations at M17 Conference will be recorded.

Tina KD7WSF and I wish *Good Success* to SP5WWP and his wife Olha for the M17 Conference. I have firsthand knowledge of how much work goes into planning such a conference.

Leave a comment

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Image courtesy of GNU Radio

Amateur Radio Activities At GRCon 2025 Next Week

By Steve Stroh N8GNJ

As I frequently confess, I'm not an expert on many of the subjects I discuss in Zero Retries, and that's especially true with Software Defined Radio (SDR). But I readily understand the incredible capabilities of SDR, so I'm eager to enjoy a week of "full immersion" in SDR at GRCon 2025. I'm particularly looking forward to the 2 hour workshop [Practical SDR: Getting Started with Software-Defined Radio](#) by Paul Clark (who I think is KG7RTI), author of the new book [Practical SDR](#).

(An unannounced *yet another door prize* for ZRDC 2025 will be a copy of KG7RTI's book, purchased by Zero Retries, that I will get autographed at GRCon 2025.) Here's a few other activities I'm specifically looking forward to:

- [GNU Radio Installation Room](#); I'm bringing my [ADALM-PLUTO](#) and my Mac so I can participate in...
- Capture The Flag ([radio style](#))
- Lightning Talks - I'm going to try to get a Lightning Talk spot to mention LinHT.
- [Building a 23cm SDR Based EME System](#) by my friend Dennis Rosenauer AC7FT. (His EME system is amazing!)
- Visiting with the [Exhibitors4](#) to talk up Amateur Radio and explain why they should pay attention to NewTechHams.
- Generally evangelizing Amateur Radio amongst the GRCon 2025 attendees as **Amateur Radio is literally a license to experiment with and learn about radio technology**.
- [Fireside Chat](#) - Discussions on the history of GNU Radio by Matt Ettus N2MJI. I'm hoping N2MJI will offer some info on his work at "Stealth Startup"[5](#).
- [Jesse Alexander WB2IFS Keynote](#) - WB2IFS was the Ham Radio Project Lead on [Exploring the Electromagnetic Spectrum \(EMS\)](#) at National Radio Astronomy Observatory.
- Amateur Radio meetup - [SDR and Amateur Radio](#).

And...

[Amateur Radio License Exams!](#) My profound thanks to the Laurel VEC team of [Western Washington Ham Training Team \(WWHTT\)](#) led by Daniel Stevens KL7WM for conducting the VE session at GRCon 2025. One number I heard for those interested in taking their Amateur Radio test at GRCon was 25! That's very cool to consider 25 NewTechHams getting their start at GRCon 2025.

"Programming" and "computers" were once esoteric subjects only understood by a relative few, but expertise on those subjects is now common. Similarly, developing new radio technology in SDR is rapidly becoming more widely understood and more approachable. Thus I'm prepared to have my mind blown multiple times at GRCon 2025 about what's now possible with Software Defined Radio technology.

Given my capabilities, I'm particularly interested in learning the basics of *using* GNU Radio flowgraphs to just *use* "radios" developed in GNU Radio.

The [GNU Radio Companion](#) (GRC) Graphical User Interface (GUI) has been available for more than a decade now, but I've not quite taken the leap to try it out and use it. I imagine there will be such opportunities to learn more about GRC at GRCon 2025.

For example, there are flowgraphs available for such widely disparate radio technologies as LoRa and M17. With "Hardware Defined Radio", these are very different radios. But in SDR, they can be loaded onto and operated from the same SDR hardware.

It would have been cool to have some [LinHT](#) hardware to show off and experiment with at GRCon, but the LinHT project is barely a few months old, and thus it's just a tad early for that. I'll have to make do with some printouts about LinHT for handing out.

[Leave a comment](#)

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Zero Retries Interesting AllScan.info Products

By Steve Stroh N8GNJ and David Gleason NR9V

This article was prompted by David Gleason NR9V of [AllScan.info](#) donating three AllScan.info products as door prizes that will be awarded to in-person attendees at Zero Retries Digital Conference 2025. N8GNJ confessed that he didn't know much about AllScan.info's products, which he had (incorrectly) assumed were only used for [AllStarLink](#) repeater networking (and user access). While they do that function well, AllScan.info's products have other applications that Zero Retries readers might find useful.

Although the primary application for AllScan.info's products is for creating interfaces and nodes to connect to AllStarLink, a commercial-grade repeater controller and interlinking system, AllScan's USB Radio Interface (URI) products support a wide variety of data modes and apps such as Packet and VARA FM (often used for Winlink nodes) as well as repeater linking systems such as AllStar, DVSwitch and EchoLink. Another application is remote rig control audio interfacing.

One aspect of the URI units that N8GNJ finds useful, and delightful, are the well thought out indicators (blinkerlights). Another aspect is that the URIs (featured in this article) all offer a USB-C interface, so no fumbling needed with sourcing various cables - *just USB-C and done*.

But beyond the appeal of the indicators and USB-C, for most of the AllScan products, NR9V chose to use the C-Media CM108B USB Controller IC for its 16-bit CD audio quality and broad OS and application support.

NR9V has been scrupulously careful to follow the guidelines set by C-Media (manufacturer of the USB Controller/codec IC used in nearly all URIs) on how PCBs should have separated analog and digital grounds and power supplies. Because AllScan products are often used to interface repeaters to AllStarLink NR9V conducted extensive testing and RFI optimization over many months. The result is that in high-RFI environments AllScan URIs are able to deliver a very high audio Signal-to-Noise Ratio (SNR).

AllScan URI101





AllScan URI101 - image courtesy of AllScan.info

[URI101 Brochure](#)

As you might guess from the Input / Output connectors, the URI101 is an interface designed for handheld radios (Handie Talkies - HTs). It supports automatic Carrier Operated Squelch (COS) and Continuous Tone-Coded Squelch System (CTCSS) detection from HT speaker audio amp bias voltage. For AllStarLink and other applications, it enables high quality nodes to be built with inexpensive off-the-shelf components. Because it's designed to use a nearby handheld radio that typically uses integral (rather than remoted) antennas, the attention to commercial-grade Radio Frequency Interference (RFI) / Electromagnetic Interference (EMI) can be an advantage over other products.

AllScan URI141



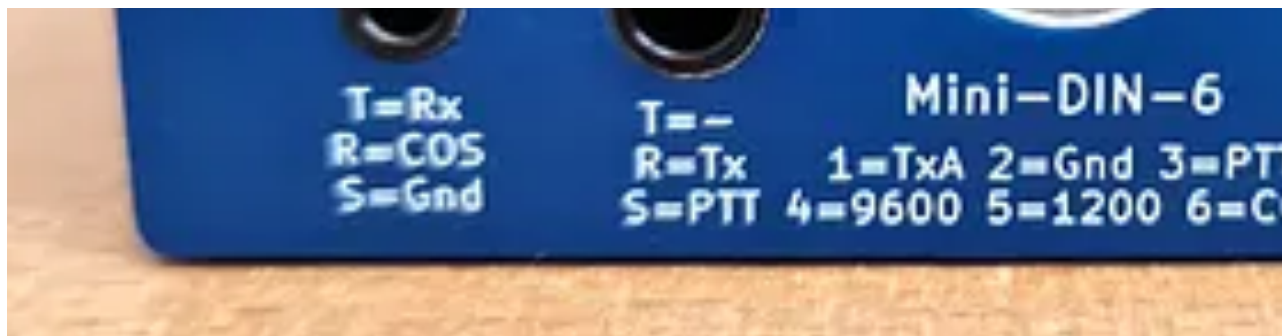


AllScan URI141 - image courtesy of AllScan.info

One key difference between the URI101 and the URI141 is that it provides 5 Volt power for HTs (example - Retevis RT85s) which enables a 100% USB-powered unit with no need for separate batteries or adapters.

AllScan URI110





AllScan URI110 - image courtesy of AllScan.info

The URI110 features a Mini-DIN-6 (6-pin MiniDIN - Flat Audio / "Data" / "9600" / "Packet") connector for use with mobile radios that have flat audio connections (example - Kenwood TM-D71A).

[URI110 Brochure](#)

The applicability of these products for applications such as DIRE WOLF packet radio and VARA FM were not previously known to N8GNJ, and it seemed worth sharing that new knowledge here in Zero Retries.

Again, one each of the three units above will be awarded to three lucky in-person attendees at Zero Retries Digital Conference 2025 next Saturday.

N8GNJ Disclaimer - There was no compensation by AllScan.info for this article (other than the aforementioned donation of door prizes to ZRDC 2025, for which N8GNJ is not eligible).

Leave a comment

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ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

[Experimental Radio News 13](#)

As I routinely disclaim, Experimental Radio News is so Zero Retries Interesting that as soon as it hits my inbox, it's a *Read It Right Now* priority.

Blockchain satellites, cargo by drone, concealed weapons imaging at THz frequencies – and sailing in space, in this issue of Experimental Radio News.

The article **Teeny sats set sail** was particularly Zero Retries Interesting:

The goal of the Alpha mission is to demonstrate a lightsail in orbit, verifying its mechanical properties. The lightsail is made of a [retroreflective material](#) used in road signage. Folded inside the CubeSat, when deployed the sail unfurls via a shape-memory alloy frame.

Four gram-scale, solar-powered [ChipSat](#) satellites are mounted to the sail. They will downlink telemetry at 437.4 MHz on orbital position and attitude kinematics to ground stations around the world.

"Due to the atmospheric drag at ISS orbit altitude, the ChipSat-sail will deorbit within 48 hours of commanded sail deployment," Cornell's [Joshua Umansky-Castro](#) told us. "With such a short time window to achieve the technology demonstration goal of a ChipSat-to-ground comms link, we need as many listeners as possible," he said. The satellites will be registered on [TinyGS](#), a globally distributed open-source network of ground stations.

Clever headline! *I really gotta get my SatNOGS / TinyGS station going after ZRDC.*

I confess that I'm a total fanboy of Bennett Kobb AK4AV. His writing style is engaging, and dives into the technical detail of experimental radio licenses without being overwhelming. In short, I learn, *a lot*, from every issue of ERN. Highly recommended!

[NASA Seeks Volunteers to Track Artemis II Mission](#)

Speaking of Amateur Radio Operators tracking space missions...

NASA seeks volunteers to passively track the Artemis II Orion spacecraft as the crewed mission travels to the Moon and back to Earth.

The Artemis II test flight, a launch of the agency's SLS (Space Launch System) rocket and Orion spacecraft, will send NASA astronauts Reid Wiseman, Victor Glover, and Christina Koch, along with CSA (Canadian Space Agency) astronaut Jeremy Hansen, on an approximately 10-day mission around the Moon.

The mission, targeted for no later than April 2026, will rely on NASA's Near Space Network and Deep Space Network for primary communications and tracking support throughout its launch, orbit, and reentry. However, with a growing focus on commercialization, NASA

wants to further understand industry's tracking capabilities.

This collaboration opportunity builds upon a previous [request](#) released by NASA's SCaN (Space Communication and Navigation) Program during the Artemis I mission, where ten volunteers successfully tracked the uncrewed Orion spacecraft in 2022 on its journey thousands of miles beyond the Moon and back.

During the Artemis I mission, participants – ranging from international space agencies, academic institutions, commercial companies, nonprofits, and private citizens – attempted to receive Orion's signal and use their respective ground antennas to track and measure changes in the radio waves transmitted by Orion.

What a perfect project to put those big dishes available to Amateur Radio such as MIT's Amateur Radio Club W1MX "[big dish](#)" ([SCR-584](#)).

It's yet another future article for Zero Retries to do the research on these big Amateur Radio dishes around the world, especially the W1MX dish that I had a very small role in saving from being deactivated permanently.

My thanks to Louis Mamakos WA3YMH for mentioning this in Zero Retries 0216 comments.

AllStar Revisited Series

[Part 1](#), [Part 2](#), [Part 3](#) of an ongoing series

Great series by Eric Grumling K0JEG explaining AllStarLink to those of us (including me) not intimately familiar with its history and current state. This series is kind of the reverse of Amateur Radio Over Internet (public Internet) that Tom Salzer KJ7T covers so well in his excellent [The Random Wire newsletter](#) (for me, another must read ASAP publication). The focus of this series is *local* usage of Amateur Radio Over Internet (or, more accurately, Amateur Radio over *household TCP/IP network*).

This series would definitely appeal to those of us who also want to dabble with Voice Over Internet Protocol (VOIP) telephony on a household level, integrating the radios with the cool VOIP phones.

[Bald Yak 12, getting raw data from a remote receiver](#)

Onno VK6FLAB in his Foundations of Amateur Radio podcast:

Over the past nine months or so I've been working on a project that I've called Bald Yak. If you're unfamiliar, the Bald Yak project aims to create a modular, bidirectional and distributed signal processing and control system that leverages GNU Radio.

One of the, admittedly many, challenges I've set myself is getting data from a radio receiver into GNU Radio across the network, preferably the Internet. Today I can report a small step in the right direction and frankly I can't contain my excitement.

VK6FLAB is another talented technical explainer of many things Amateur Radio and Software Defined Radio technology and GNU Radio. *Bald Yak Project...* (can't type that without a smile coming to my face). Just dive into previous installments for the funny explanation of the name. I can't wait to read the completed series start to finish.

[Installing a Permanent Remote HF Station on Frying Pan Tower in the Atlantic Ocean](#)

Kees Van Oosbree W0AAE guest writing for the OnAllBands blog (DX Engineering):

In early August 2023, I came across a YouTube video about Frying Pan Tower—a structure standing in the middle of the Atlantic Ocean in fifty feet of water on Frying Pan Shoals, 32 miles off the coast of Southport, North Carolina, in international waters.

...

After emailing Richard about the possibility of building a remote HF station on Frying Pan Tower, he responded with excitement, mentioning that he planned to take his Technician class license exam later that year. He is now KQ4NRF and is working on his General class license. While I had his permission, the reality set in: As a college freshman, finding the materials and funding for such an operation would be a challenge. I needed a mentor. I kept the project in the back of my mind for the next year and a half.

I think this is a cool project! Perhaps it could be expanded by a number of Amateur Radio and other additions like a SatNOGS / TinyGS station, HF / VHF / UHF beacons, full time Web SDR receiver, etc. Not to mention Amateur Radio microwave (backup) such as AREDN point to point links.

Free ebook - Signal Processing Recipes for Communication Systems

Email from Qasim Chaudhari:

For the past few years, I have been writing articles on digital signal processing, wireless communications, and software-defined radios on my website that reach hundreds of thousands of readers every year. Over time, many suggested that I compile some of these writings into a single, cohesive volume that could serve as a learning companion for those navigating the same technical terrain.

This book, Signal Processing Recipes for Communication Systems, is the result of those suggestions.

- You can download it for free here. <https://wirelesspi.com/dsp-recipes>
- For those interested in a physical copy, a paperback printed in full color is available on Amazon here. <https://amzn.to/427YMbK>

From just a quick glance at Chaudhari's website, he's a prolific and good writer on this subject. If I was starting my career to focus on wireless technology, this would be a great place to start.

ARRL Lab Helps Radio Amateurs Avoid Interfering With US Space Force Radar

Article in the [ARRL Letter newsletter for 2025-09-04](#):

US Space Command headquarters is being moved to Huntsville, Alabama, known as “Rocket City USA.” The move was announced in a press conference on September 2, 2025. Huntsville will host the 2026 ARRL National Convention as part of the Huntsville Hamfest, but there’s a bigger connection between US Space Command and amateur radio.

Space Command utilizes forces such as the US Space Force to accomplish its command mission. The ARRL Lab supports the US Space Force’s Phased Array Warning System (PAVE PAWS) early warning radar installations which scan the skies for incoming missiles and space junk.

Since 2007, the ARRL Lab has been conducting this crucial analysis using Longley-Rice terrain modeling to determine if an amateur fixed station, repeater, or EME station is eligible for a waiver to be granted by the military to run more than the 50 watts of RF power on the 70-centimeter band currently allowed with a 100-mile radius of either the Cape Cod Air Force Station in Massachusetts, or Beale Air Force Base in California. “We want to ensure that amateurs can exercise as many operating privileges as possible, while understanding the need for the Space Force to operate without interference,” said ARRL Lab Manager George Spatta, W1GKS.

Kudos to ARRL for this important work for US Amateur Radio Operators to be able to be good spectrum tenants with the “spectrum landlords” of 420-450 MHz in the US. I always pucker a bit when I read Amateur Radio Operators refer, blithely, to 420-450 MHz as an Amateur Radio band. Unlike 2 meters (144-148 MHz) and 1.25 meters (222-225 MHz) where Amateur Radio is primary, Amateur Radio is actually a secondary (to the US government) user of 420-450 MHz.

[RADE compared to SSB with reducing Tx power levels](#)

This is just an amazing example of how powerful FreeDV RADE is at overpowering adverse conditions on HF:

One of the comments was:

Note the difference in bandwidth between RADE and SSB de K2LCT

Funny story... I’d been “encouraging” (or probably, from their perspective, nagging) FlexRadio that they really should be working to integrate FreeDV RADE as just another mode selection on their superwhizbang “practically a supercomputer” 8000 series and the new Aurora to demonstrate a new Amateur Radio (developed, and exclusive) mode from the 21st century. FlexRadio’s CTO Steve Hicks N5AC replied “We’ve actually been working with Mooneer (Salem K6AQ) on this.”

Sure enough in the next article I read on the FreeDV website and blog...

[Mooneer’s FreeDV Update – August 2025](#)

...

On the topic of radio integration, I also began porting the ezDV FlexRadio implementation to Linux (specifically, Raspberry Pi 4) during the last few days of the month. This work will allow us to eventually produce a waveform file that can be uploaded using SmartSDR and effectively “build in” FreeDV support. Hopefully I’ll have more to update in my next report.

This is a really cool development. Next thing you know... *built in data modes in a FlexRadio!*

[AREDN® Network Beginner’s Guide - for the Absolute Newbie](#)

Yet another great big of technology writing by Orv Beach W6BI:

What it’s all about

By loading the AREDN® firmware in an outdoor wireless access point, you can join a ham radio network. It’s like the Internet but runs on ham radio frequencies, mostly in the 5.8 GHz band.

By joining this network you can find and use all sorts of applications (known as “services”). Anything running on a server, like weather stations, web sites showing site conditions and camera views, email servers, etc can be provided as a service.

There are also services that don’t rely on a browser: video streams, chat servers, VOIP PBXes, etc. The network can also be used to host Winlink post offices, Dstar and DMR repeaters, and Allstar devices.

Pretty much any kind of service you can put on the Internet you can put on the AREDN® network, subject to the restrictions of the ham radio regulations (FCC Part 97).

I don’t remember how I discovered this, but this article is going to be my go-to high level explanation when I discuss AREDN to non Amateur Radio Operators as an example of operating Amateur Radio in the 21st century.

Leave a comment

Share

Comments Summary From Previous Issue

Comments from Zero Retries 0217:

- Discussion of power amplifiers needing sequencing / controllers,
- Combining ka9q-radio with the KK7NQN Transcriber Service Node
- Phil Karn KA9Q discussing DB0UV SSB->FM repeater and his ka9q-radio
- Moving to Seattle area for Amateur Radio?

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Zero Retries Boilerplate

The [Zero Retries Store](#) is now open for business with quality Zero Retries branded merchandise and items being retired from Steve’s N8GNJ Labs.

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham ([The City of Subdued Excitement](#)), Washington, USA, and linked to the Internet via [Starlink Satellite Internet Access](#).

See the **Zero Retries Boilerplate** page for significant acknowledgements and other information relevant to Zero Retries. For new readers of Zero Retries, that page, and the **About Zero Retries** page has useful information to check out.

My ongoing *Thanks* to:

Tina Stroh KD7WSF for, well, *everything*!

Jack Stroh, Late Night Assistant Editor Emeritus

Shrek Stroh, Late Night Assistant Editor In training

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*Keywords in **Bold** are regular mentions in each issue.*

Footnotes for this Issue

To see the relevant sentence for the footnote, just click the footnote number.

[1](#)

The name Universal Amateur Radio Appliance (invented by me, I think...) is a homage to Matt Ettus N2MJI's (Ettus Research) creation of the [Universal Software Radio Peripheral \(USRP\)](#) which was created in 2005 - two decades ago now. We'll be celebrating the "20th birthday" of USRP at a GRCon 2025 event (*shhh... that's a secret at the moment*).

[2](#)

Generally, simultaneous transmissions from multiple transmitters that are phase and time synchronized so that the multiple transmissions are received as a single, powerful, reliable signal.

[3](#)

This is entirely an assumption on my part but given that most of the popular AI chatbots are from companies based in the US, it seems a reasonable assumption.

[4](#)

There's not 100% overlap with GRCon Sponsors and Exhibitors, but the ones that are exhibiting will be interesting to talk to!

[5](#)

Per Matt Ettus LinkedIn page:

I am building the Radio Solutions Team at a stealth-mode startup focused on civilian defense overseas. Backed by leading AI technologists, we're well-funded and rapidly growing, with a mission to develop advanced systems that protect global safety and freedom.

Please reach out if you're interested in working on exciting new wireless technologies at a great startup.